PCV81

DRUG-ELUTING STENTS VERSUS BARE-METAL STENTS FOR ACUTE MYOCARDIAL INFARCTION: AN ECONOMIC ANALYSIS APPROACH

Suh HS[1], Song H[1], Jang E[1], Lee SM[1], Choi J[1], Kim JS[2], Choi DH[2]
[1]National Evidence-based Healthcare Collaborating Agency (NECA), Seoul, South Korea, [2]Yonsei University College of Medicine, Seoul, South Korea

OBJECTIVES: To assess the economic impact of using drug-eluting stents(DES) versus bare-metal stents(BMS) in patients with ST-elevation acute myocardial infarction(STEMI) in Korea from a societal perspective **METHODS:** A cost-minimization analysis using a decision analysis model comparing DES and BMS was performed since the mortality was comparable between two stents in a random-effects meta-analysis from a systematic review of fourteen randomized controlled trials(RCTs) with 7,654 patients. One-year time period was used since most of STEMI patients require an emergency procedure and revascularization occurs within one year. The probabilities of revascularization for each stent were derived from the meta-analysis and the rest of probabilities and costs were obtained from the national reimbursement database of Health Insurance Review and Assessment(HIRA) between 2006–2009. To identify stent-naïve STEMI patients defined as having no stenting during one-year of washout period, we used two-years of intake period with diagnosis code I21 and ER visit. We also used a micro-costing method based on six experts' opinion. Uncertainty was evaluated using tornado diagrams and probabilistic sensitivity analyses. **RESULTS:** Incidence of revascularization after initial stenting was 5.42% and 11.79% for DES and BMS, respectively. The transition probabilities of DES-to-DES, DES-to-BMS, DES-to-CABG, DES-to-balloon were 62.8%, 1.5%, 4.1%, and 31.7%. The transition probabilities of BMS-to-DES, BMS-to-BMS, BMS-to-CABG, BMS-to-balloon were 52.8%, 7.6%, 0.0%, and 39.5%. The average costs of DES and BMS from HIRA data in 2009 value were US$11,007/person·year and US$9,771/person·year, respectively. Those from a micro-costing method were US$4966/person·year for DES and US$4730/person·year for BMS. DES versus BMS resulted in higher costs for US$1237/person·year using HIRA data and US$236/person·year using micro-costing approach. The model was highly sensitive to the probability and costs of having no revascularization. **CONCLUSIONS:** The use of BMS versus DES in STEMI patients may be a cost-saving procedure. Local large RCTs are needed to minimize the uncertainty of results.

PCV82

ECONOMIC EVALUATION OF THE USE OF PERFLUOROCARBON EMULSION (PFC) VS. PERIOPERATIVE BLOOD TRANSFUSION IN CARDIAC SURGERY WITH CARDIOPULMONARY BYPASS AT THE MEXICAN INSTITUTE OF SOCIAL SECURITY

Contreras I[1], Chavez-Negrete A[2], Contreras F[3], Pinedo-Villanueva RA[4], Garduño-Espinosa J[5]
[1]Instituto Mexicano del Seguro Social, Delegación Cuauhtémoc. Distrito Federal, Mexico, [2]Social Security Mexican Institute, Mexico, Mexico, [3]Oasis hospital, Tijuana Baja California, Mexico, [4]Wessex Institute, Southampton, Hampshire, UK, [5]Hospital Infantil de Mexico. "Federico Gomez", Mexico, Mexico

OBJECTIVES: Open-heart surgery requires cardiopulmonary bypass (CPB) along with transfusions to maintain adequate blood volume. The purpose of this study was to identify the economic impact of using an artificial oxygen carrier instead of blood transfusion in cardiac surgery with CPB at the Mexican Institute of Social Security (know in Mexico as IMSS) from the health care payer's perspective. **METHODS:** A cost-minimization analysis was developed in a randomized clinical trial. Seven patient candidates for cardiac valve replacement received 5 ml/kg of prefluorocarbon (PFC) artificial oxygen carrier during cardiac surgery. They were compared with 11 patients, which received conventional blood transfusions. Clinical, biochemical and hemodynamic parameters, and survival were measured for both groups during hospitalization. Resources and materials used and cost data were obtained from the patients' hospital records for the hospitalization period. **RESULTS:** Clinical, biochemical and hemodynamic parameters did not show any significant differences between groups. All patients were discharged noting clinical improvement. The hospital stay of the conventional blood transfusion group was 5.55 ± 3.62 days vs. 5.0 ± 0.82 days in the PFC group. The mean per patient cost of blood products in the conventional blood transfusion group was US $993.40, and the PFC group mean per patient cost was US $469.48. The total mean per patient cost during hospitalization in the conventional blood transfusion group was US $31,261.87 ± US $16,239.60. The PFC's total mean per patient cost was US $27,358.90 US ± US $9,671.00 (p = 0.57). The difference in cost was US $3902.97 per patient. **CONCLUSIONS:** The use of PFC has similar clinical outcomes as the use of conventional blood transfusion in cardiac surgery with CPB, and it could present potential savings.

PCV83

ECONOMIC ANALYSIS OF ENDOVASCULAR STENTING FOR PERIPHERAL ARTERIAL DISEASE IN LONG LESIONS OF THE SUPERFICIAL FEMORAL ARTERY

Chu K, Hay JW
University of Southern California, Los Angeles, CA, USA

OBJECTIVES: To evaluate the cost-effectiveness of endovascular stent treatments used in the revascularization of long lesions of the superficial femoral artery (SFA) for patients with peripheral arterial disease (PAD). **METHODS:** A three-state Markov model was constructed and analyzed from the societal perspective. A cycle length of six months was used to reflect the average number of days between reinterventions and the model was simulated over a lifetime time horizon with a discount rate of 3%. Mean health care costs were calculated for the initial procedure, follow-up, reinterventions, adverse events, and surveillance. Procedural costs were derived from the 2009 Medicare data and device costs were obtained from the March 2009 Intercontinental Marketing Services (IMS) data. The main measure of effectiveness was quality adjusted life expectancy expressed in quality adjusted life years (QALYs). Quality of life estimates were based on utilities that were derived from the literature and a multicenter, randomized, prospective study that compared the use of bare to covered nitinol stents in patients with lower limb PAD. **RESULTS:** For the average patient, a 66 year old male, revascularization with a covered nitinol stent decreased the number of reinterventions needed and thus, decreased lifetime expenditures compared to bare nitinol stents. The undiscounted and discounted incremental cost-effectiveness ratios (ICERs) calculated for the base case scenario was $63,675/QALY and $80,564/QALY, respectively. A one-way sensitivity analysis over the parameters for cost, adverse events, utilities, cycle length, age, and discount rate, demonstrated that covered nitinol stenting would be the preferred treatment over bare nitinol stenting except in the case at age 90 and in the case where reintervention costs for bare nitinol stenting was reduced by 25%. **CONCLUSIONS:** Covered nitinol stenting for the revascularization of long lesions in the SFA is a cost-effective treatment strategy compared to bare nitinol stenting.

PCV84

COST-EFFECTIVENESS OF ROSUVASTATIN 10 MG IN THE REDUCTION OF CARDIOVASCULAR MORBIDITY AND MORTALITY IN PATIENTS AT RISK OF CARDIOVASCULAR DISEASE

Ohsfeldt R[1], Gandhi SK[2], Jensen MM[3], Smolen L[4], Fox KM[5], Gold A[2], Hsia J[2]
[1]Texas A&M Health Science Center, College Station, TX, USA, [2]AstraZeneca LP, Wilmington, DE, USA, [3]AstraZeneca, Lund, Sweden, [4]Medical Decision Modeling Inc., Indianapolis, IN, USA, [5]Strategic Healthcare Solutions, LLC, Monkton, MD, USA

OBJECTIVES: This study assessed the long-term cost-effectiveness of rosuvastatin 10 mg therapy in reducing the incidence of major cardiovascular disease (CVD) events and mortality in patients at higher risk of CVD events (Framingham risk ≥10%). **METHODS:** A probabilistic Monte Carlo simulation model estimated long-term cost-effectiveness of rosuvastatin therapy (10 mg daily) for the prevention of CVD mortality and morbidity in patients with Framingham 10-year CVD risk >10%. The model was developed based on the JUPITER (Justification for the Use of statins in Primary prevention: an Intervention Trial evaluating Rosuvastatin) trial findings and includes modeling of initial and subsequent CVD events and death over time. Using rosuvastatin 20 mg efficacy findings from the JUPITER trial, efficacy of rosuvastatin 10 mg was estimated using the Framingham equation based on effects on total cholesterol/high-density lipoprotein cholesterol ratio. The quarterly event probabilities were used to construct survival curves for patients in both the treatment and placebo groups, and the relative risk of rosuvastatin was estimated and extrapolated beyond the trial duration. A payer perspective was used with direct medical costs, and 10-year, 20-year and lifetime horizon. **RESULTS:** For a hypothetical cohort of 100,000 patients (age 65 years, 60% men) at moderate or high risk of CVD events (Framingham risk ≥10%), estimated quality-adjusted life-years (QALYs) gained with rosuvastatin therapy, compared with placebo, was 31,079 over a lifetime horizon, and 22,598 and 8,580 over 20- and 10-year horizons, respectively. Rosuvastatin 10 mg treatment avoided approximately 11,044 events over the lifetime (5,665 non-fatal MIs, 2,741 non-fatal strokes, and 3,448 CVD deaths avoided). Estimated incremental cost-effectiveness ratio (ICER) for cost per QALY was $7,974 (lifetime), $12,865 (20-year horizon), and $53,101 (10-year horizon). **CONCLUSIONS:** Study results indicate rosuvastatin 10 mg treatment to be a cost-effective treatment alternative in patients at a higher risk of CVD events.

PCV85

COST-EFFECTIVENESS OF ATORVASTATIN IN ACUTE CORONARY SYNDROME (ACS) PATIENTS IN SPAIN

Thurston S[1], Webb C[2], Rejas J[3], Van Hout B[1]
[1]Pharmerit Ltd, York, UK, [2]Pfizer Limited, Tadworth, Surrey, UK, [3]Pfizer España, Alcobendas/Madrid, Spain

OBJECTIVES: To estimate the clinical and economic costs and effects of 2 year treatment with high intensity atorvastatin therapy (80 mg) versus moderate to high dose simvastatin and pravastatin therapies in Spanish patients with acute coronary syndrome (ACS). **METHODS:** Using data from statin trials in ACS (MIRACL, PROVE-IT, AtoZ) and priors from published statin meta analyses (CTT, Law), efficacy is estimated based on a Bayesian meta-analysis linking reductions in LDL cholesterol to reductions in secondary cardiovascular (CV) events (MIs, strokes, CV deaths). A Markov model combines estimates of the occurrence of later events; Spanish cost data; and quality of life. Risks are taken from the ACS CURE study. A baseline event risk of 12.1% is used in the first 6 months and 3.89% during later months. The time horizon of the analyses is lifetime (50 years). **RESULTS:** Compared to simvastatin 80 mg, the cost per QALY for atorvastatin 80 mg treatment for 2 years is very cost effective at €14,123. Accounting for a 50% price reduction post LOE will result in atorvastatin being even more cost effective. When compared to treatment with pravastatin 40 mg, the cost per QALY is €4,958 for atorvastatin 80 mg, which becomes dominant when the price reduction is included. ICERs improve when risk with age is reduced, lower discount rates are used, and when atorvastatin cost is decreased. **CONCLUSIONS:** Preliminary findings show that using atorvastatin 80 mg to treat high risk Spanish ACS patients is a very cost-effective intervention, with cost effectiveness ratios of <€15,000 versus simvastatin 80 mg and <€5,000 versus pravastatin 40 mg. Moreover, following LOE, the cost per QALY becomes extremely cost